

**ABSTRACT**

Ecto-NTPDase function on Langerhans cells is demonstrated to counteract the nucleotide inflammatory response caused by certain types of chemical irritants. The present invention takes advantage of this observation by, first, providing methods for 10 screening of chemicals for irritant potential based on their ability to induce nucleotide release from keratinocytes. Second, methods are provided for the prevention and treatment of inflammation using NTPDase protein or gene therapy. And third, there also are provided methods for screening candidate compounds for NTPDase modulatory activity, thereby identifying possible pro- and anti-inflammatory agents. Additionally, 15 the role of NTPDases and P2 receptors in hyperactive immune conditions such as autoimmune diseases and allergic reactions such as allergic contact dermatitis has been demonstrated. Therefore, the invention also provides methods for the prevention and treatment of hyperactive immune conditions by using NTPDase inhibitors and/or P2 receptor inhibitors. Further provided are methods for screening candidate compounds for 20 modulatory activity of NTPDase-mediated immune conditions, thereby identifying other possible immunotherapeutic agents.